

REMARKS

Claims 14, 15, 23, 24, and 30-37 were previously pending in this application. Claims 14, 15, 23, 24, 30, 31, and 34 have been amended. New claims 38-41 have been added. As a result claims 14, 15, 23, 24, and 31-41 are pending for examination with claims 14, 30, 33 and 38 being independent claims.

Claim 34 has also been amended by adding the adjective “free” before the term “silicon” to clarify that the claimed article does not have silicon not associated with carbon as silicon carbide silicon bonded with the carbon in the silicon carbide structure. The claims have been amended to clarify what Applicants consider the invention and are distinguishable over the art of record. No new matter has been added and support for an article that has no free silicon can be found in the specifications as originally filed.

Rejection under 35 U.S.C. §112

The Examiner has rejected claims 14, 15, and 23 under 35 U.S.C. §112, for failing to comply with the written description requirement. Applicants respectfully disagree for the reasons stated below.

A person having ordinary skill in the art at the time of the filing of the pending application would have been familiar with recrystallized silicon oxide and recrystallized silicon nitride. Evidence of such is supported by copies of the references cited in the Information Disclosure Statement filed herewith.

The Examiner has rejected claims 14, 15, 23, 24, 30-32, and 37 under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants respectfully disagree for the reasons stated below.

Applicants have amended independent claims 14 and 30 to clarify that the impurity is one of iron, copper, nickel, chromium, and calcium. Therefore, rejected claims 14, 15, 23, 24, 30-32, and 37 are not indefinite.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 112 is requested.

Rejections Under 35 U.S.C. §§102/103

The Examiner has rejected claims 14, 15, 23, 24, 30-34, and 37 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Japanese documents 10-228974 (hereinafter “JP ‘974”) and 07-328360 (hereinafter “JP ‘360”).

JP ‘974 fails to teach or suggest a recrystallized ceramic material selected from the group consisting of silicon carbide, silicon nitride, and aluminum oxide, and an impurity that is one of iron, copper, nickel, chromium, and calcium, at less than 1 ppm. Applicants disagree that because the Japanese documents fail to teach the presence of nickel, iron, titanium, zirconium, rare earths, etc., the contents are considered zero. These articles are prepared by kneading silicon and carbon powder, which necessarily introduces metallic impurities from the kneading equipment into the subsequently formed ceramic matrix. (See JP ‘974 at Example 1.) Indeed, an iron containing compound is typically used, at 1 wt%, to promote grain growth in the ceramic matrix when producing silicon carbide heaters. (See JP ‘360 at Example.) For at least these reasons, the silicon carbide heaters disclosed by these references would necessarily have an impurity of greater than 1 ppm.

For at least the foregoing reasons, reconsideration and withdrawal of the rejection of claims 14, 15, 23, 24, 30-34, and 37 as being anticipated or obvious over the teachings of JP ‘974 and JP ‘360 is respectfully requested.

The Examiner has also rejected claims 33 and 34 under 35 U.S.C. §102(b) as being anticipated by the teaching of Holmes et al. (U.S. Patent No. 5,770,324). Applicant respectfully disagrees because Holmes fails to teach each and every element of claim 33 or claim 34. In particular, the cited reference fails to teach a recrystallized silicon carbide member having a network of pores.

The Examiner has further rejected claims 14, 15, 23, 24, and 30-37 under 35 U.S.C. § 102(b) as being anticipated by, or under 35 U.S.C. § 103(a) as obvious over the teaching of Dubots et al. (U.S. Patent No. 6,162,543).

Applicants disagree that claims 14, 15, 23, 24, and 30-37 are anticipated by or would have been obvious over the teaching of Dubots.

Dubots fails to teach an interconnected network of pores because the reference teaches a bimodal ceramic of silicon carbide and carbon. That is, during fabrication, a significant fraction

of the starting carbon body is retained as such because the absence of the network of pores of the carbon body prevents impregnation of silicon during silicon carbide formation.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 14, 15, 23, 24, and 30-37 under 35 U.S.C. §§ 102 or 103.

Newly Added Claims

Newly added claims 38-41 are directed to a ceramic article comprising recrystallized silicon carbide having an interconnected network of pores with a pore size of at least 5 μm and an oxide layer on at least a portion of at least one surface of the ceramic article.

No new matter has been introduced with these new claims. Support for these claims can be found throughout the application, including the claims, as originally filed.

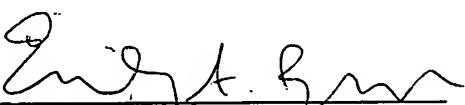
Further, these claims are novel and not obvious over the teachings of the above-cited references.

CONCLUSION

In view of the foregoing amendments and remarks, reconsideration is respectfully requested. This application is in condition for allowance; a notice to this effect is respectfully requested. If the Examiner believes, after this Amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this Amendment is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50/2762.

Respectfully submitted,
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